Can Markedness Take Over Subset Principle?[1]

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Han, Ho. 1999. Can markedness Take Over Subset Principle? *Linguistics* 7-2, 117-127. This study explores whether or not markedness can account for the acquisition data that the subset principle provide explanation for. Goodluck (1991) stipulates that logically the subset principle can be reduced to the notion of markedness. This stipulation is logically quite right, but it overlooks some cases of incongruity among markedness, the subset principle, and children's hypothesis testing. For the former issue, I will consider null subject utterances in child English, while for the latter issue, children's errors will be taken into account, which appear to result from hypothesis testing. I will conclude that markedness and the subset principle need to be considered as separate principles, countering Goodluck's (1991) stipulation. **(Ajou University)**

1. Introduction

This study investigates whether the predictions of the subset principle, which was originally designed to explain the development of the Binding Conditions, can be reduced to markedness predictions, as proposed by Goodluck (1991). Goodluck (1991: 153) writes:

". . . the logic of the subset principle dictates that the first rules the language learner hypothesizes are the most frequent rules (situations) cross-linguistically. So the predictions of the subset principle are in a

1. This paper is a revised version of my paper presented at the Linguistics Association of Korea Conference on May 8, 1999. I thank the participants of the conference and especially Prof. Sang-Oh Lee for a thought-provoking question about children's hypothesis testing. Of course, all errors are mine.

manner confounded with markedness predictions. Thus it is possible that the subset principle, at present formulated as a principle of acquisition rather than a principle of grammar, may ultimately reduce to (as yet undiscovered) rules of grammar; or, conversely, that frequent situations in languages of the world do not always follow from principles of grammar, but may reflect in some manner the process of acquisition."

It seems logically plausible to reduce or unify the two principles. However, I will argue that is not the case, although there might be sometimes accidental overlap between the two principles.

This paper is organized as follows: Section 2 discusses the two principles with respect to their theoretical background as well as supporting empirical evidence. My argument against Goodluck's stipulation is presented in Section 3. Summary and concluding remarks is provided in Section 4.

2. Subset Principle and Markedness

2.1 Subset Principle

The Principles-and-Parameters (P&P) approach suggests that language acquisition is involved with a process of parameter setting; children with innate knowledge of core principles of UG set a parameter on the basis of input. One of the studies on parametric variation is on the development of Binding Conditions (BC) with respect to the local domain where the BCs apply. The Binding Conditions are roughly stated as follows:

BC (A): An anaphor must be bound in its governing category.
BC (B): A pronominal must be free in its governing category.
BC (C): An R-expression must be free everywhere.

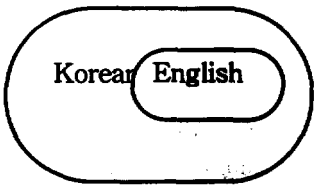
X is a governing category for Y iff X is the minimal category containing Y, a governor for Y, and a subject.

Yang(1983) first noted that languages vary in terms of the local domain (governing category), *i.e.*, how minimal is the local domain? For instance, the local domain of the BC (A) in English is roughly the smallest S containing a reflexive pronoun, its antecedent, and a subject. On the other hand, Korean allows a reflexive pronoun to be bound within the smallest S most immediately dominating a reflexive pronoun or sometimes across that smallest S. Korean children entertain two possible domains while English-speaking children takes only one. This contrast is illustrated as follows:

(1) a. Mary$_i$ thinks that John$_j$ likes himself$_j$/*herself$_i$
b. Mary$_i$-nun John$_j$-i casin$_{i/j}$-ul cohahanta-ko sayngkakhanta
Mary-Nom John-Nom self-Acc like-Comp think

Wexler and Manzini (1987) suggested that there is a set-theoretical relation among languages in association with the local domains. For instance, a subset relation holds between English and Korean regarding the local domain of the Binding Condition A.

(2)



Now the question is whether English-speaking children start with the subset or with the larger set. According to 'No Negative Evidence' hypothesis, children's output is not corrected generally, but they only get positive evidence. Therefore, English speaking children must start with the most restricted possibility, which is the subset, and Korean

children also start with the subset, extending their grammar to allow the larger set once they get positive evidence that illustrates the binding relation across the smallest S. The Korean case is evidenced by Lee's (1987) data. Her study showed that children learning Korean tended to select the structurally closest referent for a reflexive pronoun. This amounts to saying that young Korean children begins with the smallest set.

The subset principle is purely a learning mechanism, which is irrelevant with UG. This learning mechanism functions to process the input and produce the output. With the 'No Negative Evidence' hypothesis, it provides a logical and reasonable explanation of the learning procedure.

However, the subset principle is not without problems. First, children learning English produce sentences containing a reciprocal *each other*, the occurrence of which is constrained by BC (A), but young children sometimes have a reciprocal bound by its antecedent across the S. There is no concrete answer to this problem, but I suspect that it is because of the lexical property of *each other*. I leave this issue for future research. Second, not all acquisition data are explained in terms of the subset principle, as reported by Jakubowicz and Olsen (1988). It is this matter that we are concerned with. More details on this issue will be discussed later in Section 3.

2.3 Null Argument Parameter (NAP)

Young children, including English speaking children, produce morphologically null arguments, null subject or null object, while they produce a full sentence with overt arguments. There have been two competing arguments on this issue; One is based on syntactic licensing/identification, and the other on processing reason.

Hyams (1986) argues that null subject is identified through certain properties of inflection. She postulates [AG(reement)/PRO] parameter, which states that a language allows null subject if it has [+] value,

while it does not if the value is [-].[2] Italian is [+AG/PRO], and English is [-AG/PRO]. Therefore, children learning English start with [+AG/PRO] and later they reset the parameter to [-AG/PRO]. This process is involved with agreement-identification process: Inflectional morphemes (agreement features) help Italian children identify the subject of a sentence. On the other hand, Huang (1989) suggests that null subject is structurally licensed through topic-identification process, which assumes null Top(ic) as in Chinese. He argues that early child English entertains the Chinese-like grammar.

Another interesting syntactic analysis is Jaeggli and Safir's (1989) uniformity hypothesis. They demonstrate that a language with morphologically uniform system of inflections allows null subject. Their analysis assumes a parameter [+/- uniform]. Languages with the feature [+uniform] have either no inflection or full inflection.[3]

Valian (1990) and Bloom (1990) among others criticized the syntactic accounts based on the license by AGR feature. Valian did a statistical analysis of null subject sentences in both English and Italian. If the syntactic accounts by Hyams (1986) is right, the ommission rate is expected to be almost same. But the data shows that English-speaking children omit subject in 70% of sentences they produce, while Italian-speaking children omit subject in 30% of sentences. This incongruity in the omission rate weakens Hyams' argument.

Another problem of those syntactic accounts is that they do not consider null object. Null object is observed in early child language although it occurs less frequently than null subject. Considering these facts, Valian and Bloom propose that children omit subject or object for

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2. In Hyams (1986) system, it is assumed that where AUX contains lexical material, AUX heads I; otherwise, AG heads I. She suggests that the parameter has [+] value when AG = PRO, while [-] when AG≠PRO. The details of this system is far from our discussion here.

3. In these syntactic accounts, German raises a question. German has full inflection, and thus it is [+uniform]. But adult German does not allow null arguments. Such a peculiar case of German has been discussed regarding the characteristics of German syntax. For details, see Jaeggli and Safir (1989).

a processing reason.

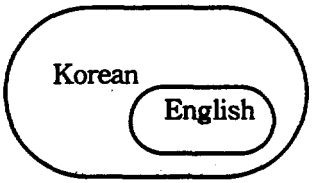
In contrast, the syntactic accounts attribute omission of arguments to markedness. Hyams (1986) contended that [+null] is an unmarked feature, while [-null] is a marked one. According to the markedness, which was originally proposed to account for the development order of sounds, children start first with an unmarked option and later extend to a marked option. As Goodluck (1991) correctly states, the markedness is not a learning principle but rather a grammatical principle.

One query is whether there is any set relation between a [+null] language and a [-null] language. In fact, Hyams (1986) states that there seems to be intersecting-set relation between Italian and English because Italian and English have some overlaps, for instance, in subject-Aux inversion. English allows tensed inverted sentences only, while Italian only allows infinitive and gerundive inverted sentences. This relation shows that some sentence types in Italian cannot be included in English. Since Hyams relates inversion to null subject parameter, this leads her to a stipulation that Italian and English form intersecting set.

However, notice that now the NAP is not limited to English vs. Italian. Other languages like Chinese, Japanese, and Korean are involved, which are not specified with such inversion patterns. The simple logic of the subset principle is that a language is a subset when it generates fewer possibilities in output through a certain grammatical operation than some other language. Not limiting the application of the subset principle to the English vs. Italian case, and considering the number of possibilities, we naturally propose that [-null] languages are the subset of any [+null] languages.

Now we posit a subset relation between Korean and English in terms of the NAP, as illustrated (3):

(3)



According to the subset principle English-speaking children are expected to start with the language with the most restricted possibility (full sentences alone), and, thus, not to produce utterances with null arguments owing to the absence of negative evidence. Korean children are also expected to start with full sentences and later proceed to the whole set with two possibilities owing to positive input.

But the situation is quite opposite. The fact is that all children start with the larger set which allows both full sentences and null argument sentences. English speaking children proceed to the most restricted subset. How can we explain this contradiction between a learning principle and a grammatical principle? Does markedness override the subset principle? Or, if markedness does not work in the NAP, utterances with null argument probably result from processing constraints. These are the issues we now turn to.

3. Separate Application of the Two Principles

Goodluck (1991) notes that logically, unmarked items are equivalent to the subset elements. Recall that unmarked items are most frequently occurring (widely distributed) items. Also notice that a member contained within a subset is also always a member of a whole set containing the subset. Therefore, the members of a subset are the most frequently occurring items. With this line of reasoning, Goodluck suggests that the predictions made by the subset principle, a learning principle, could be reduced to markedness predictions, a grammatical principle. This logic appears to be quite right. But Goodluck encounters

a contradictory situation as observed in the NAP, in which a marked [-null] languages with narrow distribution is a subset of an unmarked [+null] language with wide distribution. It seems that the two principles cannot be reduced to one, unlike Goodluck's stipulation.

One remaining question is in what way the two principles work separately. I suggest that each principle works in a different grammatical sector. This is supported by children's hypothesis testing.

First of all, consider why and how the subset principle was designed. It was originally proposed to deal with the language variation in the local domain for the BCs. Roughly speaking, the BCs are relevant to syntax, in that interpretation of NPs relies on syntactic configuration. Especially, the local domain is determined, relying on purely syntactic configuration.

In contrast, the NAP is actually about morphology. There must be a subject in every sentence and an object where it is required. The issue is whether a subject or an object NP is morphologically overt or covert. In natural languages arguments can be null if conditions are met. The null argument in child English, the absence of subject or object, is morphologically covert argument. We, therefore, may conclude that phonological and morphological development are governed by markedness. This is evidenced by children's overregularization:

(4) go => *goed / went

In English the regular past tense form is an unmarked option while the irregular one is a marked option, if we consider the markedness in terms of distribution. Children start with the unmarked option which is rule-governed, and apply the past tense formation rule even to a verb that inflect irregularly. The development of tense form in child English is an example of the transition from a marked option to an unmarked one. On the other hand, the subset principle says nothing in this case; there is no set relation between regular and irregular past forms.

This sort of hypothesis testing that results in overregularization is

also observed in the development of semantics in child English. Let us consider children's innovative causatives. Bowerman (1982, cited in Goodluck (1991)) illustrates that English-speaking children produce innovative causatives as seen in (5).

(5) It always sweats me. 'It always makes me sweat.' 4;3
This is aching my legs. 'This makes my legs ache.' 5;3

In terms of distribution, causative verbs are marked options, and non-causative verbs are unmarked. The data in (5) show that children test their hypothesis (here, causativization) whenever they encounter a verb in early English. However, the production of innovative causatives implies that children start with the larger set with more possibilities (a verb as a causative or non-causative verb) even though this result from errors. Here the subset principle cannot account for semantic development. Therefore, hypothesis testing in semantics is well explained by the markedness.

Now we seem to have a clear distinction in the application of the two principles. The subset principle, a learning principle, is applicable to syntactic development, while markedness, a grammatical principle, mainly apply to phonology, morphology, and semantics.

An alternative resolution of the contradictory situation between the subset principle and markedness in the NAP is to reject the markedness, as suggested by Han (1999). I argued that if the null argument sentences are relevant to processing road, we would not need the markedness. The rejection of the syntactic accounts in favor of the processing account leads us to getting out of the contradictory situation by means of discarding markedness explanation: It is not a matter of which is marked or unmarked, but it is, rather, a matter of ommission. In this regard the processing account raises no problem, and we can safely keep the logic for the subset principle and the effect of markedness.

4. Summary

In this study I argued against Goodluck's (1991) proposal that preductions by the subset principle may be reduced to markedness predictions. Her reasoning is that the subset elements are logically most unmarked. But The NAP offers a quite opposite situation: a marked option constitutes the subset. Consequently, Goodluck's proposal does not appear to hold in all cases in language acquisition.

It was shown that the subset principle might be applicable only to syntactic development while markedness mainly holds for semantic, phonological, and morphological development. In addition, I argued that if we accept the processing account for the NAP, we would not have to rely on the markedness.

To ensure my argument, of course, I need to investigate other acquisition data over various sectors of grammar. I leave it for future research.

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